

REMARKS

Claims 1-22 are pending in the application.

Claims 1-22 have been rejected.

Claims 1, 6, 7, 8, 12, 13, 14, 17, 20, 21 and 22 have been amended, as set forth herein.

I. **REJECTION UNDER 35 U.S.C. § 112**

Claims 1, 3-13 and 17-22 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The rejection is respectfully traversed.

Applicant has amended independent Claim 1 to remove the term “may.”

Applicant has amended independent Claim 1 (and its dependent claims) to recite “determining . . . whether its determined longest prefix match comprises an overall longest prefix match among the other determined longest prefix matches of the other network packet search engines.” As a result, the claim recites that the packet search engine determines whether its determined longest prefix match comprises the overall prefix longest match among the other longest prefix matches (of the other packet search engines).

The other independent Claims (and their dependent claims) rejected hereunder have been similarly amended to more particularly point out and distinctly claim the subject matter.

Accordingly, the Applicant respectfully requests withdrawal of the § 112 rejection of Claims 1, 3-13 and 17-22.

II. REJECTION UNDER 35 U.S.C. § 102

Claims 1 and 3-22 were rejected under 35 U.S.C. § 102(e) as being anticipated by Greene (US Patent No. 6,631,419). The rejection is respectfully traversed.

A cited prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. MPEP § 2131; *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). Anticipation is only shown where each and every limitation of the claimed invention is found in a single cited prior art reference. MPEP § 2131; *In re Donohue*, 766 F.2d 531, 534, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985).

As previously stated, certain of the independent claims provide a method for operating a network processing unit 104 and a plurality of cascaded network packet search engines (102a, 102b, 102c, 102d). Each of the plurality of network packet search engines (NPSE 102) independently receives the same (or a copy of the) search command (or the search key) and independently searches its own lookup table (designated prefix table 200). Each of the plurality of cascaded network packet search engines (102a, 102b, 102c, 102d) determines the longest prefix match that it can find in its own respective prefix table 200. Then the overall longest prefix match is determined from the plurality of the longest prefix matches that have been independently determined by each of the plurality of the network packet search engines (102a, 102b, 102c, 102d). That is, the Applicant's invention determines which of the plurality of longest prefix matches that are found by the plurality of network packet search engines (102a, 102b, 102c, 102d) is the overall longest prefix match, and responds to the search command when the longest prefix match is the overall longest prefix match.

The Greene reference teaches receiving a destination IP address (e.g., search key) at a single search engine (designated lookup engine 106) which divides the search key into three portions. Therefore, Greene fails to address the problem of matches that occur within multiple search engines. In Greene, a 32-bit search key is divided into a first 16-bit portion, a second 6-bit portion, and a third 10-bit portion. The single lookup engine 106 of Greene includes three independent memory arrays (116, 118, 120).

The first 16-bit portion of the search key is sent to the first memory array 116 where only prefixes less than or equal to 16-bits are considered. The output of the first memory array 116 is an output value when the prefix is less than or equal to 16 bits and a pointer value to the second array 118 when the prefix is greater than 16 bits.

The second 6-bit portion of the search key is sent to the second memory array 118 where only prefixes less than or equal to 22-bits are considered. The output of the second memory array 118 is an output value when the prefix is less than or equal to 22 bits and a pointer value to the third array 120 when the prefix is greater than 22 bits.

The third 10-bit portion of the search key is sent to the second memory array 120 where only prefixes greater than 22 bits are considered. The output of the second memory array 130 is an output value when the prefix is greater than 22 bits.

Applicant reiterates the arguments and reasoning as set forth in Applicant's prior response, and further provides the following remarks.

First, Greene teaches a single search engine that divides the search key into different portions -- which are used to search different memory arrays. In distinct contrast, Applicant's claims are

directed to a plurality of cascaded network packet search engines. Applicant's independent Claims 1 and 8 recite "receiving a search command at each one of a plurality of network packet search engines" (emphasis added). Applicant's independent Claim 14 recites "sending a search command to each one of a plurality of network packet search engines" (emphasis added). Applicant's independent Claim 22 recites "a plurality of network packet search engines coupled to the network processing unit, each network packet search engine operable to: receive a search command from the network processing unit." Applicant respectfully submits that it appears the Office Action either (1) ignores these recited features or (2) broadly interprets this language such that a "search command" (or the search key within the search command) as received (or sent) at one search engine may be different from another search command as received (or sent) to another search engine. In the event the current rejection is based on (2) above, then Applicant respectfully requests the Examiner contact the undersigned to discuss appropriate claim language or amendments that might distinguish that the search command received (or sent) to each of the search engines is the same search command (or copy thereof) or is a search command that includes some of the same information (e.g., the search key).¹

¹ In the event the Office Action is interpreting the destination IP address 102 as equivalent to Applicant's search command (or search key), only one element - the lookup engine 106 - operably receives such search command. Therefore, Greene fails to disclose this element. In the event each of the three portions (L1bits, L2bits, L3bits) of the destination IP address 102 are somehow being interpreted as the search commands, such commands are different and the elements 116, 112 and 114 do not receive "the search command."

Second, the Greene reference fails to disclose or teach (1) determining a longest prefix match at each of the plurality of search engines and (2) determining at one (or another) of the search engines whether its determined prefix match comprises an overall longest prefix match among the other determined prefix match(es) of the network packet search engines. See, independent Claims 1, 8, 17 and 22. In other words, each of the plurality of network packet search engines (102a, 102b, 102c, 102d) determines the longest prefix match that it can find in its own respective prefix table 200. Then, one of the search engines determines whether its prefix match is an overall longest prefix match from among the plurality of the longest prefix matches that have been independently determined by each of the plurality of the network packet search engines (102a, 102b, 102c, 102d). The search engine responds to the search command when its longest prefix match is the overall longest prefix match. Greene simply does not disclose or teach making a determination that a prefix match is a overall longest prefix match among the plurality of prefix matches (determined by each search engine).

Accordingly, the Applicant respectfully requests the Examiner withdraw the § 102(e) rejection of Claims 1 and 3-22.

III. CONCLUSION

As a result of the foregoing, the Applicant asserts that the remaining Claims in the Application are in condition for allowance, and respectfully requests an early allowance of such Claims.

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If any issues arise, or if the Examiner has any suggestions for expediting allowance of this Application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at wmunck@munckbutrus.com.

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Munck Butrus Deposit Account No. 50-0208.

Respectfully submitted,

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